Amendments to the Claims:

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for the investigation of a fuel cell system, said fuel cell system having an anode side to which a fuel is supplied in operation and a cathode side to which an oxidizing agent is supplied in operation and comprising at least one fuel cell, each said fuel cell having an anode, a cathode and a membrane separating said cathode from said anode, said method comprising a first test comprising at least one of the following tests:

a) to test whether said fuel cell system is gas-tight at said anode side and/or at said cathode side,

b) to test whether a leakage is present between said anode side and said cathode side,

c) to test a starting behaviour of said fuel cell system, or

d) to test an operation of said fuel cell system at low current yield,

said first test being carried out with a mixture of at least one inert gas with a fuel permissible for the operation of said fuel cell system, said mixture being supplied to said anode side of said fuel cell system and the amount of fuel in the mixture being predetermined such that a proportion of said fuel present in said mixture lies below a value

at which said mixture is flammable in air, and wherein said tests are conducted outside of a test chamber, wherein the mixture consists essentially of 95% N_2 and 5%H_2.

2. (Previously presented) A method in accordance with claim 1, wherein said mixture includes less than 5.7 vol.-% hydrogen.

3. (Canceled)

4. (Currently Amended) ~~A method in accordance with claim 1~~ A method for the investigation of a fuel cell system, said fuel cell system having an anode side to which a fuel is supplied in operation and a cathode side to which an oxidizing agent is supplied in operation and comprising at least one fuel cell, each said fuel cell having an anode, a cathode and a membrane separating said cathode from said anode, said method comprising a first test comprising at least one of the following tests:

a) to test whether said fuel cell system is gas-tight at said anode side and/or at said cathode side,

b) to test whether a leakage is present between said anode side and said cathode side,

c) to test a starting behaviour of said fuel cell system, or

d) to test an operation of said fuel cell system at low current yield,

said first test being carried out with a mixture of at least one inert gas with a fuel permissible for the operation of said fuel cell system, said mixture being supplied to said anode side of said fuel cell system and the amount of fuel in the mixture being

predetermined such that a proportion of said fuel present in said mixture lies below a value at which said mixture is flammable in air, and wherein said tests are conducted outside of a test chamber, wherein the mixture consists essentially of 95% N_2 and 5%H_2, wherein the first test is carried out in an environment with a normal air atmosphere.

5. (Currently Amended) A method in accordance with claim [[1]] 4, wherein the first test is carried out in an environment with normal ventilation.

6. (Currently Amended) A method in accordance with claim [[1]] 4, wherein at least one of said tests a), b), c) or d) is carried out during or after manufacture of a vehicle incorporating said fuel cell system as a source of propulsion in order to test operability of said vehicle at a time of manufacture.

7. (Currently Amended) A method in accordance with claim [[1]] 4, wherein the first test is carried out in a workshop after repair of a vehicle containing said fuel cell system.

8. (Currently Amended) ~~A method in accordance with claim 1~~ A method for the investigation of a fuel cell system, said fuel cell system having an anode side to which a fuel is supplied in operation and a cathode side to which an oxidizing agent is supplied in operation and comprising at least one fuel cell, each said fuel cell having an anode, a cathode and a membrane separating said cathode from said anode, said method comprising a first test comprising at least one of the following tests:

a) to test whether said fuel cell system is gas-tight at said anode side and/or at said cathode side,

b) to test whether a leakage is present between said anode side and said cathode side,

c) to test a starting behaviour of said fuel cell system, or

d) to test an operation of said fuel cell system at low current yield,

said first test being carried out with a mixture of at least one inert gas with a fuel permissible for the operation of said fuel cell system, said mixture being supplied to said anode side of said fuel cell system and the amount of fuel in the mixture being predetermined such that a proportion of said fuel present in said mixture lies below a value at which said mixture is flammable in air, and wherein said tests are conducted outside of a test chamber, wherein the mixture consists essentially of 95% N_2 and 5%H_2, in which said fuel cell system is present as a module, at least one of said tests a), b), c) or d) being carried out during or after the manufacture of said module prior to the installation of said module in one of a vehicle and an installation.

9. (Currently Amended) A method in accordance with claim [[1]] 4, at least one of said tests a), b), c) or d) being carried out on a test bed during development of said fuel cell system.

10. (Currently Amended) A method in accordance with claim [[1]] 4, wherein a plurality of fuel cells are combined together to form said fuel cell system in the form of a

fuel cell stack and at least one of said first test a), b), c) or d) is carried out at said fuel cell stack.

11. (Currently Amended) A method in accordance with claim [[1]] 4, wherein said fuel cell system comprising at least first and second inlets and at least first and second outlets wherein, during the carrying out of the first test a), said mixture is filled at a predetermined test pressure into said fuel cell system through one of said inlets and outlets, with simultaneous, previous or subsequent closing of further ones of said inlets and said outlets out of which an exit of said mixture could take place and wherein a measurement is made whether said test pressure reduces impermissibly as a function of time.

12. (Previously Presented) A method in accordance with claim 11 wherein said predetermined test pressure is approximately twice the operating pressure of the fuel cell.

13. (Currently Amended) A method in accordance with claim [[47]] 1, wherein said fuel cell system comprising at least first and second inlets and at least first and second outlets as well as a plurality of valves at least one of which is associated with each said inlet and outlet, there being lines communicating with said valves, wherein a quantity of said mixture is fed into said fuel cell system, said quantity of said mixture is measured, said valves are switched on or off in accordance with at least one of a predetermined pattern and a predetermined sequence, a measurement is made of a quantity of said mixture emerging from at least some of said lines, a sum is formed of said emerging quantities and

is compared with said fed-in quantity to determine any leakages, which appear as a difference value.

14. (Original) A method in accordance with claim 13 wherein at least one said valve is a regulatable valve which can be switched on and off.

15. (Original) A method in accordance with claim 13, wherein a development in time of said difference value is compared with said predetermined pattern in order to associate any eventually present leakage with a leakage source or a plurality of leakage sources.

16. (Currently Amended) A method in accordance with claim [[1]] 4, wherein said fuel cell system is heated to one of an operating temperature and a maximum permissible excess temperature during the carrying out of any one of said tests.

17. (Currently Amended) A method in accordance with claim [[1]] 4, wherein said fuel cell system is heated to one of an operating temperature and a maximum permissible excess temperature prior to the carrying out of any one of said tests.

18. (Currently Amended) A method in accordance with claim [[1]] 4, wherein, during development of said fuel cell system, at least one of said tests is carried out as a long term test.

19. (Original) A method in accordance with claim 18, said fuel cell system including a plurality of valves which can be switched on and off wherein said long term test includes a plurality of switching on or switching off processes of said valves which can be switched on and off.

20. (Original) A method in accordance with claim 19, said fuel cell system further including at least one regulating valve having at least one set value, wherein said long term test also includes changes of said set value.

21. (Original) A method in accordance with claim 18, wherein said long term test includes a plurality of heating up and cooling down cycles of said fuel cell system.

22. (Currently Amended) ~~A method in accordance with claim 1~~ A method for the investigation of a fuel cell system, said fuel cell system having an anode side to which a fuel is supplied in operation and a cathode side to which an oxidizing agent is supplied in operation and comprising at least one fuel cell, each said fuel cell having an anode, a cathode and a membrane separating said cathode from said anode, said method comprising a first test comprising at least one of the following tests:

a) to test whether said fuel cell system is gas-tight at said anode side and/or at said cathode side,

b) to test whether a leakage is present between said anode side and said cathode side,

c) to test a starting behaviour of said fuel cell system, or

d) to test an operation of said fuel cell system at low current yield,

said first test being carried out with a mixture of at least one inert gas with a fuel permissible for the operation of said fuel cell system, said mixture being supplied to said anode side of said fuel cell system and the amount of fuel in the mixture being predetermined such that a proportion of said fuel present in said mixture lies below a value at which said mixture is flammable in air, and wherein said tests are conducted outside of a test chamber, wherein the mixture consists essentially of 95% N_2 and 5%H_2, wherein an association is developed between an electrical power generated by said fuel cell system when supplying a predetermined quantity of said mixture to said fuel cell system and an actual power yield of said fuel cell system when supplying an actual quantity of fuel in operation at at least one preset operating point, with a check being made whether said electrical power generated during said supply of said predetermined quantity of said mixture corresponds to an expected power yield for said predetermined quantity of said mixture, from which a conclusion is drawn whether, in operation, with supply of said actual quantity of fuel, said actual power yield can be expected at said at least one preset operating point.

23. (Currently Amended) A method in accordance with claim [[1]] 4, wherein an association is developed between an electrical power generated by said fuel cell system when supplying a predetermined quantity of said mixture to said fuel cell system and an actual power yield of another fuel cell system of the same kind when supplying an actual quantity of fuel in operation at at least one present operating point, with a check being made whether said electrical power generated during said supply of said predetermined

quantity of said mixture corresponds to an expected power yield for said predetermined quantity of said mixture, from which a conclusion is drawn whether, in operation, with supply of said actual quantity of fuel, said actual power yield an be expected at said at least one preset operating point.

24. (Original) A method in accordance with claim 22, wherein said association is examined for various supplied quantities of said mixture and an investigation is made whether corresponding values of said electrical power generated permit a conclusion that said fuel cell system will work in operation at corresponding operating points with different actual quantities of fuel being supplied.

25. (Original) A method in accordance with claim 23, wherein said association is examined for various supplied quantities of said mixture and an investigation is made whether corresponding values of said electrical power generated permit a conclusion that said fuel cell system will work in operation at corresponding operating points with different actual quantities of fuel being supplied.

26. (Canceled)

27. (Canceled)

28. (Canceled)

29. (Canceled)

30. (Currently Amended) A method in accordance with claim [[1]] 4, wherein, after a successfully concluded test with said mixture a proportion of fuel in said mixture is increased and a second test is carried out in the same manner as the first test.

31. (Previously Presented) A method in accordance with claim 30, wherein said second test is carried out to determine whether a higher power yield of the fuel cell system can be achieved with a significantly reduced proportion of inert gas in said mixture.

32. (Previously Presented) A method in accordance with claim 30, wherein said second test is carried out to determine whether a full power yield of said fuel cell system can be achieved with a degenerated mixture without inert gas.

33. (Currently Amended) A method in accordance with claim [47] 1, wherein at least one of a fuel sensor and an inert gas sensor is used in order to determine any leakages of said mixture.

34. (Canceled)

35. (Canceled)

36. (Canceled)

37. (Canceled)

38. (Canceled)

39. (Canceled)

40. (Canceled)

41. (Canceled)

42. (Canceled)

43. (Canceled)

44. (Currently Amended) ~~A method as set forth in claim 1~~ A method for the investigation of a fuel cell system, said fuel cell system having an anode side to which a fuel is supplied in operation and a cathode side to which an oxidizing agent is supplied in operation and comprising at least one fuel cell, each said fuel cell having an anode, a cathode and a membrane separating said cathode from said anode, said method comprising a first test comprising at least one of the following tests:

a) to test whether said fuel cell system is gas-tight at said anode side and/or at said cathode side,

b) to test whether a leakage is present between said anode side and said cathode side,

c) to test a starting behaviour of said fuel cell system, or

d) to test an operation of said fuel cell system at low current yield,

said first test being carried out with a mixture of at least one inert gas with a fuel permissible for the operation of said fuel cell system, said mixture being supplied to said anode side of said fuel cell system and the amount of fuel in the mixture being predetermined such that a proportion of said fuel present in said mixture lies below a value at which said mixture is flammable in air, and wherein said tests are conducted outside of a test chamber, wherein the mixture consists essentially of 95% N_2 and 5%H_2, wherein the inert gas comprises nitrogen and the fuel comprises hydrogen; and further comprising supplying said mixture from a mixture tank.

45. (Currently Amended) ~~A method as set forth in claim 1~~ A method for the investigation of a fuel cell system, said fuel cell system having an anode side to which a fuel is supplied in operation and a cathode side to which an oxidizing agent is supplied in operation and comprising at least one fuel cell, each said fuel cell having an anode, a cathode and a membrane separating said cathode from said anode, said method comprising a first test comprising at least one of the following tests:

a) to test whether said fuel cell system is gas-tight at said anode side and/or at said cathode side,

b) to test whether a leakage is present between said anode side and said cathode side,

c) to test a starting behaviour of said fuel cell system, or

d) to test an operation of said fuel cell system at low current yield,

said first test being carried out with a mixture of at least one inert gas with a fuel permissible for the operation of said fuel cell system, said mixture being supplied to said anode side of said fuel cell system and the amount of fuel in the mixture being predetermined such that a proportion of said fuel present in said mixture lies below a value at which said mixture is flammable in air, and wherein said tests are conducted outside of a test chamber, wherein the mixture consists essentially of 95% N_2 and 5%H_2, wherein the inert gas comprises nitrogen and the fuel comprises hydrogen, and further comprising supplying said mixture comprising controlling the flow of hydrogen and nitrogen from separate sources.

46. (Currently Amended) A method as set forth in claim [[1]] 8 carried out without a test chamber.

47. (Canceled)

48. (Canceled)